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EXAMINER
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/791,829

Filing Date: March 04, 2004

Appellant(s): SATO, SHIN

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Manabu Kanesaka  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 1/31/08 appealing from the Office action mailed 8/23/07.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,292,422	Liang et al.	3-1994
6,649,037	Liang et al.	11-2003

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-2, 4-6 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Liang et al. (Liang), U.S. Patent 6,649,037.

The Liang patent discloses the claimed electrodeionization apparatus comprising an anolyte compartment having an anode, a catholyte compartment

having a cathode, concentrating and desalting compartments formed between the anolyte and catholyte compartment by arranging alternately at least one anion exchange membrane and at least one cation exchange membrane, ion exchanger with which the desalting compartments are filled, ion exchanger fills the concentrating compartments a device for introducing electrode water to the anode and catholyte compartments respectively, a concentrated water introducing device for introducing concentrated water into the concentrating compartments, a device for feeding raw water into the desalting compartments to produce deionized water and outlets formed at the desalting compartments for taking out the deionized water, wherein the water from the outlet of the diluting compartment is fed to the inlet of a concentrating compartment (see example 1, starting on column 14). An embodiment of the Liang patent discloses the introduction of water at a side near the outlets for the water of a desalting compartment and the water flows out of the compartment at a side near an inlet for the water (see figure 13 and col. 11, lines 31-61). The reference further discloses the use of the same types of ion exchange materials, and the same types of arrangement of the ion materials (see cols. 6, lines 49-60, col. 9 and 10). The reference while disclosing a two-stage

system, does disclose that the different configurations may be within a single module (see col. 10, lines 57-65).

Therefore, since the reference discloses each and every limitation, the claims are anticipated.

In the alternative, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the disclosure of the Liang patent to recycle the water from the desalting compartment outlet to the inlet of the concentrating compartment in the same module, because given the disclosure of Liang one having ordinary skill in the art would find it predictable to select from the variety of different configurations based upon the material being treated and removed to obtain the purified liquid.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liang '037 as applied to claims above, and further in view of Liang '422 applied as of record.

The Liang patent does not disclose the tie rods as claimed. The prior Liang patent teaches the use of tie rods as conventional in the assembly of electrodeionization cells (see col. 7, lines 33-66).

Therefore, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the disclosure of the Liang patent with the teachings of the '422 patent, because the '422 patent teaches the conventional use of tie rods to secure the electrodeionization cell.

**(10) Response to Argument**

Appellants argue that the Liang '037 patent does not disclose the deionized water is introduced to the concentrating compartment "at a side near the outlets for the deionized water of the desalting compartments" and the concentrated water flows out of the concentrating compartment at a side near an inlet for the raw water of the desalting compartment (emphasis supplied).

Figure 13 of the Liang '037 patent discloses the introduction of water at a side near the outlets for the water of a desalting compartment and the water flows out of the compartment at a side near an inlet for the water (see figure 13 and col. 11, lines 31-61). The material being treated in the compartments is given little or no patentable weight in an apparatus claim.

Appellants further argue that Liang '037 only appears to disclose in Figure 1, a two stage system, where the first product is fed into the concentrating

compartment of a second module, whereas in the instant application, the product from the depletion compartment is fed into the concentrating compartment of the same module.

When the entire patent is perused and not merely Figure 1, the invention as claimed with the placement of the inlets to some compartments are adjacent outlets of other compartments is clearly disclosed by Liang '037. Figure 13 as recited above, shows the introduction of water from the outlet of a compartment fed to the inlet of another compartment. Furthermore, the terms "desalting compartments" and "concentrating compartments" as defined in the instant claims are compartments placed between anolyte and catholyte compartments separated by anion and cation membranes having ion exchanger therein. The compartments shown and described in Figure 13 read upon such an arrangement.

Furthermore, with respect to the use of a single module as presently claimed and argued or a two or more modules as suggested in Figure 1, the Liang '037 patent teaches that one such a modification to a single module or other plural modules would have been possible ways to arrange the electrodeionization apparatus (see col. 10, lines 57-65).

With regard to the alternate obviousness rejection, appellants argue that the examiner has failed to establish the necessary step of explaining why, if all the examples disclosed by Liang '037 fail to disclose, teach or suggest, the appellant's method, would it be predictable for one having ordinary skill to have made the claimed invention.

Appellants appear to be arguing that the Liang '037 patent fails to teach appellants method, and therefore, the claimed apparatus should be allowable.

As shown above, not all the examples fail to teach the appellants' apparatus. Furthermore, the patent teaches that one having ordinary skill in the art would have been motivated to use a single module or two or more modules to arrange an electrodeionization apparatus.

Therefore, the invention as whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the disclosure of Liang '037 with the teachings contained therein, because the patent teaches that modification to the electrodeionization apparatus can comprise one module or two or more modules to obtain predictable results, i.e., the deionization of water.

Likewise, claims 2 and 4-6 are not patentable over Liang '037, since claim 1 is not patentable.

With respect to claim 7, the Liang '422 patent is cited to show the use of tie rods to assemble electrodeionization modules into an electrodeionization apparatus. Accordingly, claim 7 would be rejected, since appellants fail to argue that the combination is untenable.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Arun S. Phasge/

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Art Unit: 1795

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